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20 October 1969

MEMORANDUM FOR THE RECORD

SUBJECT: Special Purpose Computers

1. The Agency is currently under contract for the procurement of ~~five~~^{six} Honeywell computers as integral components of four separate projects. ~~Four~~^{Five} of the computers are a result of NPIC contracts while the ~~fifth~~^{sixth} computer is a part of the ~~ORD image restoration equipment~~, which will be taken over by NPIC on delivery. The purpose of this memo is to outline, for planning purposes, the equipment to be delivered and the options available for each of the programs.

2. The four program areas utilizing the computers as an integral part of the project are: 1) High Precision Stereo Comparator; 2) Automatic Stereo Scanner; 3) Automatic Target Recognition; and 4) ~~the ORD image restoration equipment~~. The specific computer and peripheral or interface equipment associated with each project is as follows:

a) High Precision Stereo Comparator

1. DDP-516-04 computer with 16K memory.
2. DDP-516-11 high speed arithmetic package.
3. DDP-516-50 & 52 high speed paper tape assembly (Teletype Corp. Punch Model BRPE-11 and Digitronics Reader, Model 2500).
4. ASR-35 Teletype (DDP-516-55).

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GROUP 1 Excluded from automatic downgrading and declassification

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b) ~~ORD~~ Image Restoration Equipment

1. DDP-416 computer with 4K memory.
2. DDP-416-4100 Magnetic Tape Control Unit.
3. DDP-416-20 Direct Multiplex Control.
4. DDP-416-4106 Direct Multiplex Control Sub-Channel.
5. 3110 Model Series Kennedy Magnetic Tape Transport.
(9 Track 25 IPS 556/800 BPI).
6. ASR-33 Teletype.

c) Automatic Stereo Scanner

1. DDP-516-02 Computer with 8K memory.
2. DDP-516-25 & 25-1 12 priority interrupt lines.
3. DDP-516-4100 Tape Control Unit
4. DDP-516-4130 Magnetic Tape Transport (36 IPS).
5. DDP-516-50 & 52 Paper Tape Unit (same as HPSC).
6. KSR-35 Teletype.
7. Special Interface
 - a. 16 bit discrete input.
 - b. 24 channel multiplexer with unipolar
10 bit A/D converter.
 - c. 12 analog output channels.
 - 2 6-bit D/A converter
 - 10 4-bit D/A converters(converter output +5 v at 1 ma)
 - d. 12 lamp driver (relay driver) outputs each set
to trigger on binary 0 to a D/A converter.
 - e. 12 lamp driver (relay driver) outputs directly
addressable.
 - f. Automatic "start" hardware to sense "power on"
from 110 v line clear the computer and jump
to a prepared "start" subroutine.

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d) Automatic Target Recognition

1. DDP-516-02 Computer.
2. DDP-516-20 Magnetic Tape Controller.
3. DDP-516-21 Memory Access.
4. DDP-516-50 & 52 Paper Tape Assembly (same as HPSC).
5. ASR-35 Teletype (DDP-516-55)

Note: A second DDP-516 system is also part of the program, but the actual listing of equipment is not available at this time.

3. The above-listed equipment represents only the self-contained data processing hardware aspects of each of the individual projects and does not represent the requirements for external computer support. Additionally, it is not intended to convey or represent the software or logic requirements of the programs.

4. A duplicate set of manuals has been obtained for the data processing equipment to be delivered with the stereo scanner. They are applicable to all three DDP-516's and, to some extent, the ~~DDP-416~~ and are available on loan from For a listing of 25X1 the manuals available, see the attached list.

5. Honeywell normally includes two weeks of programmer training for two people and three weeks of maintenance training for three people for a total of 13 man weeks per machine in the purchase price of each computer. This training is available to Agency personnel if the program contractor elects not to utilize it in the performance of their contract. This represents an availability of 65 man weeks of paid up training, for which I understand arrangements can be made to trade

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between the software and maintenance training if additional hours of one type is desired at the expense of the other. For each of the five computers, the current situation is as follows:

- a. The HPSC contractor has elected not to utilize any of the training available. IEG/PHD and PSG/AID have made arrangements to send one man each for two weeks of software training. No provisions have yet been made to utilize the maintenance training.
- b. The ORD equipment contractor has utilized two man weeks of software training. The remaining training is available to Agency personnel, but no provisions have been made to utilize it.
- c. The stereo scanner contractor has elected to utilize the training themselves, but at this time it is not known to what extent.
- d. The Automatic Target Recognition contractor has elected to use two man weeks of the available training and have no plans at this time to use the remainder.

5. The HPSC and ~~ORD equipment~~ are both ~~scheduled for delivery to the Center around April 1970~~. The Automatic Target Recognition equipment is scheduled for delivery about September 1970. The Automatic Stereo Scanner delivery is the least certain at this time and it would be premature to predict a delivery date at this time.

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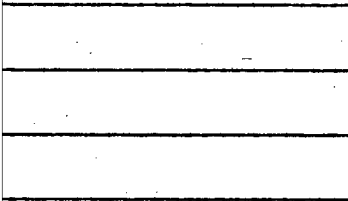
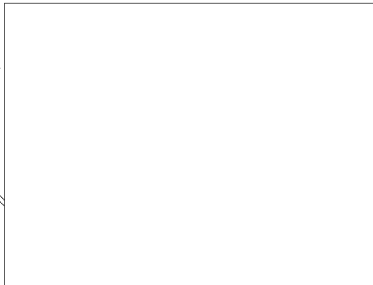
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Attachment:
Publications List

COORDINATION:



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List of Publications Available for Loan
on the Honeywell DDP 416 & 516

<u>Volume No.</u>		<u>Title</u>
1	M-991	Programmers Reference Manual
2	M-993	DAP-16
3	M-992	FORTTRAN IV
4	M-995	Utility
5	M-996	I/O Library
6	M-994	Math Library, Vol. I & II
7	M-997	Verification and Test
8	M-965	Installation
9	M-965	Interface
10	M-978	Programmers Reference Manual (DDP-516)
11	M-979	Programmers Reference Card
12	M-1043	Users Guide
13	M-1010	Reliability
14	M-142	FORTTRAN IV
15	M-1018	DAP-16
16	M-1016	Priority Interrupt & Memory Increment
17	M-973	Paper Tape Reader
18	M-974	Paper Tape Punch
19	M-969	Mag. Tape Unit - 4100
20	M-59	Paper Tape Reader - Vendor
21	M-137	Paper Tape Punch - Vendor #215B
22	M-516	Tech. Manual Motor Unit KSR

<u>Volume No.</u>		<u>Title</u>
23	M-676	Tech. Manual KSR-35, Bull 280B Vol I & II
24	M-515	SKR-35 Parts Manual, Bull. 1201B
25	M-966	Instruction Manual Vol I
26	M-967	Instruction Manual Vol II
27	M-968	Instruction Manual Vol III
28	M-138	BRPE Punch Manual #1154B
29	M-346	Mag. Tape MTD-10C-11C
30	M-347	Mag. Tape Supplement
31	M-343	Tech. Manual KSR Vol. I Bull 281B
32	M-358	Tech Manual KSR Vol. II Bull 281B
33	-	ECO, Ser, 220
34	-	Analog System Doc. #130072031A
35	M-614	Mag Tape Addendum